



April 19, 2012

Admiral James Arden Barnett, Jr.  
Chief, Public Safety and Homeland Security Bureau  
Federal Communications Commission  
Washington, D.C. 20554

Re: City of Charlotte, North Carolina  
700 MHz Public Safety Broadband Network  
Eighth *Quarterly Report* (April 2012)  
PS Docket No. 06-229

Dear Admiral Barnett:

On behalf of the City of Charlotte, North Carolina (Charlotte), this letter submits the April 2012 quarterly report required by the Commission's *May 12, 2010 Order* addressing the 700 MHz public safety broadband segment.<sup>1</sup> The *May 12, 2010 Order* granted waivers to several state or local agencies for early deployment of public safety broadband networks in the 700 MHz public safety broadband spectrum. The CharMeck Connect project is a waiver recipient.<sup>2</sup>

The CharMeck broadband project continues to move forward by integrating the system's design and deployment into the Commission's and other agency requirements and policies. Our commitment to meet deployment projections, as well as fulfilling the responsibility associated with expending public monies, remains steadfast. It is motivated by the value the broadband network will provide to the region's public safety agencies and the citizens they assist.

The effort continues to encompass thoroughness and care in determining the system's design and build out and establishing its operational framework, all within the Commission's

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<sup>1</sup> In the Matter of Requests for Waiver of Various Petitioners to Allow the Establishment of 700 MHz Interoperable Public Safety Wireless Broadband Networks, *Order*, FCC 10-79, PS Docket 06-229, Paragraph 64 (May 12, 2010).

<sup>2</sup> The CharMeck Connect (CharMeck) 700 MHz broadband project is a partnership of the City of Charlotte, Mecklenburg County, and the Towns of Cornelius, Davidson, Huntersville, Matthews, Mint Hill and Pineville. The lead agency is the City of Charlotte.

requirements. Extensive exchanges with the Commission's staff and other waiver recipients have ensued. Added to the effort was enactment of the Middle Class Tax Relief and Job Creation Act of 2012, Pub. Law 112-96 (Feb. 22, 2012), which directs the Commission to license the 700 MHz broadband spectrum and the adjacent 700 MHz D Block to the National First Responder Network Authority (FirstNet), an independent authority within the National Telecommunications and Information Administration (NTIA) of the Department of Commerce.

Charlotte remains grateful to the courtesy and commitment of the Commission to the project.

The following profiles the activities during the quarter:

**Interoperability-** Charlotte's Interoperability Showing (IOS) was submitted to the Commission on January 12, 2012. As a result of discussions with the Commission staff regarding the IOS' parameters, Charlotte reviewed and filed an IOS clarification on March 2, 2012.<sup>3</sup> The IOS reiterates Charlotte's commitment to ensure that the system will be built to provide the Commission's outdoor coverage minimum data metrics. The document addresses System Architecture Overview, Security Capabilities, Interoperability Testing, Conformance Testing, Public Safety Roaming and Interference Mitigation.

With regard to Interference Mitigation, Charlotte believes that the Frequency Selective Scheduling (FSS) technique is better suited for the dynamic environment involved. On March 14, 2012, Charlotte filed a request for waiver of this requirement.<sup>4</sup>

Charlotte believes it now comports with the Commission's requirements addressing IOS. Its overall interoperability plan, including the IOS, is in the pre-approval stage with the Commission. Charlotte continues active coordination with the State of North Carolina.

**PLMN ID-** A critical element of national connectivity and individual network performance centers on the Public Land Mobile Network Identifier (PLMN ID). A PLMN ID is a globally unique identifier of a 3GPP mobile communications network.

On January 9, 2012, the Public Safety and Homeland Security Bureau issued the *PLMN ID Order*<sup>5</sup> and required waiver recipients to submit their choice of numbering administrator for approval and, provided that the Bureau approves the submission, to complete the development of

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<sup>3</sup> Letter to Jennifer Manner, Esquire, Deputy Chief, Public Safety and Homeland Security Bureau, Federal Communications Commission, from Elizabeth R. Sachs, Esquire, Lukas, Nace, Gutierrez and Sachs, Counsel for the City of Charlotte, *Clarification of Interoperability Showing*, filed in PS Docket No. 06-229 (March 2, 2012).

<sup>4</sup> Letter to Jennifer Manner, Esquire, Deputy Chief, Public Safety and Homeland Security Bureau, Federal Communications Commission, from Elizabeth R. Sachs, Esquire, Lukas, Nace, Gutierrez and Sachs, Counsel for the City of Charlotte, *Request for Waiver of the City of Charlotte, Interference Mitigation Techniques*, filed in PS Docket No. 06-229 (March 14, 2012).

<sup>5</sup> Requests for Waiver of Various Petitioners to Allow the Establishment of 700 MHz Interoperable Public Safety Wireless Broadband Networks, PS Docket 06-229, *Order*, DA 12-25 (Jan. 9, 2012) (*PLMN ID Order*).

a numbering scheme by March 31, 2012. On February 8, 2012, the twenty-one waiver recipients filed a joint request asking the Bureau to approve the selection of Science Applications International Corporation (SAIC) as the numbering administrator. On March 16, 2012, the Bureau issued an *Order*<sup>6</sup> approving SAIC to serve as the common numbering administrator.

The waiver recipients, through their Operator Advisory Committee, have worked with SAIC on developing the numbering scheme. Charlotte verifies that it completed developing the numbering scheme by the March 31, 2012 deadline of the *PLMN ID Order*. Charlotte also verifies that it has received its numeric identifiers from SAIC, as reviewed by the federal Department of Homeland Security, that it has coordinated the use of the PLMN ID with ATIS-OIC (Telcordia) and that there is no new information regarding SAIC's licenses or affiliations that might call into question its ability to serve as a fair and impartial administrator.<sup>7</sup>

Charlotte and other 700 MHz public safety broadband waiver recipients recommend that the Commission review and give consideration to a request that it stay the current requirement, under paragraph 22 the *PLNM-ID Order*, to "retain the services of a common entity to provide clearinghouse functions". In view of Public Law 112-96, and that the need for the clearinghouse will not materialize until later than 2013, Charlotte believes that such a request is well grounded.

**Project Has Moved to Implementation Phase-** The Systems Network Design is now substantially complete; the Implementation Phase is underway. Phase 1 equipment (8 Center City Site), relating to Microwave Equipment, RF Equipment and Radio Access Network (RAN) equipment, is now being shipped. Radio Frequency Design is nearly complete.

Specifically:

- The microwave studies and path design are definitive. Equipment is fully staged and tested and ready to deploy for Stage 1. Microwave licensing is also complete.
- Site preparations for the evolved base stations, eNB (eNodeB), and microwave sites have commenced. Site walks, tower applications, tower leasing agreements, physical design specifications, structural mapping and analysis are complete for most sites. Site preparation work for the data center has commenced.
- The Radio Access Network (RAN) design is 95% complete. Equipment is being configured and staged so that it is ready for install.

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<sup>6</sup> Requests for Waiver of Various Petitioners to Allow the Establishment of 700 MHz Interoperable Public Safety Wireless Broadband Networks, PS Docket 06-229, *Order*, DA 12-423 (March 16, 2012).

<sup>7</sup> This verification seeks to comply with the Commission's *PLMN Order*, paragraph 21, addressing implementation of the PLMN ID. *See also*, Letter to Jennifer Manner, Esquire, Deputy Chief, Public Safety and Homeland Security Bureau, Federal Communications Commission from Steve Koman, LTE Broadband Program Office, Business Support Services, City of Charlotte, *Status Attainment*, filed in PS Docket 06-229 (April 12, 2012).

- Design of the System Internetworking is complete and equipment is now being configured. The Hosted, Split ePC (evolved packet core) Core design is complete. Equipment is being configured and staged.
- The Test Team, which is dedicated to Designing Testing Processes and Optimization Plans, has commenced its work. RF optimization and RF testing planning and Acceptance Test Planning (ATP) is underway.
- Four vendors responded to the request for proposals addressing end user LTE device products, including vehicle modems, USB dongles, and tablets. Review of the proposals and contracting for devices is nearly complete.

As noted in the March 2, 2012 IOS amendment, section 4, Charlotte will require all device manufacturers to undergo successful Interoperability Testing (IOT) in Alcatel-Lucent's IOT lab and the IOT lab of at least one other E-UTRAN NodeB (eNBs) vendor prior to deployment. Alcatel-Lucent is the CharMeck network provider. Charlotte will require all User Equipment (UEs) to be capable of interoperability in the public safety portion of Band 14 with at least two other eNBs from different vendors for both Local Packet Gateway Access (LPA) and Home Packet Gateway Access (HPA).

- As a result of responses to the request for information (RFI) addressing managed interworking network and/or IPX services (InterNet Packet Exchange), a request for proposals (RFP) is being prepared.
- The Infrastructure InterWorking Architecture is complete. This work was an integral element of, and converged with, the amended IOS filed on March 2, 2012. It also encompassed administrative matters addressing the Numeric Identifiers/Numbering Scheme/PLMN ID referenced in Charlotte's April 12, 2012 letter.

**NTIA-** Charlotte continues to provide information to, and respond to inquiries from NTIA, which supervises the Broadband Technology Opportunities Program (BTOP) grant supporting the project.

**FirstNet-** Charlotte remains on a deployment path more expeditious than many waiver recipients. Enactment of Public Law 112-96, which places authority and responsibility for the 700 MHz broadband nationwide network in FirstNet presents transition and administrative challenges, particularly to waiver recipients that are now moving to deploy and commence operations. The procurement for IPX services, referenced above, can be expected to have greater relevance during a transition and is but one example. Charlotte will continue to discuss with the Commission, NTIA, the Department of Homeland Security, the best means to move forward.

The CharMeck Connect project remains on course. The effort has involved complex technical and policy objectives. The work during this past calendar quarter has been significant and portends the reality of what CharMeck's Connect project can provide to meaningfully advance emergency response to benefit the citizen. It also presents the immediate challenge to meet the Phase 1 objective, for which we seek the Commission's continued consideration.

A copy of this quarterly report has been provided to Chief McEwen of the Public Safety Spectrum Trust and to Mr. Lance Johnson of the National Telecommunications and Information Administration.

Please call upon me if I can provide any additional information.

Respectfully,

A handwritten signature in black ink, appearing to read "Steve Koman", with a long horizontal flourish extending to the right.

Steve Koman  
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Copy Provided to:

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Chairman, Public Safety Spectrum Trust

Mr. Lance Johnson  
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